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| Soggetti | Observations, Astronomical<br>Astronomy—Observations<br>Astrophysics<br>Astronomy, Observations and Techniques<br>Astrophysics and Astroparticles |
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| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Part 1: The basics -- Chapter 1: Setting the scene: high energy photons and particles -- Chapter 2: Radiation-matter interactions -- Chapter 3: Interactions of photons and particles along the path -- Part 2: The world of detectors -- Chapter 4: Detectors: general characteristics -- Chapter 5: Detectors bases on ionization in gases and liquids -- Chapter 6: Scintillation detector systems -- Chapter 7: Detectors based on ionization in solid state materials -- Chapter 8: Cherenkov and Transition Radiation detectors -- Chapter 9: Calorimeters -- Chapter 10: Measurement of physical properties of photons and particles -- Part 3: High energy astronomy -- Chapter 11: Ultraviolet and X-ray astronomy -- Chapter 12: Gamma ray astronomy -- Chapter 13: Cosmic ray astronomy -- Chapter 14: Neutrino astronomy -- Chapter 15: Gravitational wave astronomy -- Chapter 16: The dark side of the Universe -- Chapter 17: Observing in high energy astrophysics -- Chapter 18: Conclusions. |
| Sommario/riassunto | This textbook presents ultraviolet and X-ray astronomy, gamma-ray astronomy, cosmic ray astronomy, neutrino astronomy, and gravitational wave astronomy as distinct research areas, focusing on |

the astrophysics targets and the requirements with respect to instrumentation and observation methods. The purpose of the book is to bridge the gap between the reference books and the specialized literature. For each type of astronomy, the discussion proceeds from the orders of magnitude for observable quantities. The physical principles of photon and particle detectors are then addressed, and the specific telescopes and combinations of detectors, presented. Finally the instruments and their limits are discussed with a view to assisting readers in the planning and execution of observations. Astronomical observations with high-energy photons and particles represent the newest additions to multimessenger astronomy and this book will be of value to all with an interest in the field.